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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,060	12/31/2003	Thanikavelu Manimaran	FR-7280	1291
7982	7590	02/10/2005	EXAMINER	
EDGAR SPIELMAN ALBEMARLE CORPORATION 451 FLORIDA BLVD. BATON ROUGE, LA 70801			CHOI, LING SIU	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/751,060

Applicant(s)

MANIMARAN ET AL.

Examiner

Ling-Siu Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/25/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

1. Claims 1-21 are now pending, wherein claims 1, 8, and 15 are independent claims.

Claim Objections

2. Claim 15 are objected to because of the following informalities: claim 15, line 6, "which is further comprised" is suggested to be changed to --which is comprised--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. **The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:**

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoechst Aktien-Gesellschaft (GB 1 531 799).

The present invention relates to an improvement comprising

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A	mixing hydrochloric acid or hydrobromic acid or both with a reaction mass at least once
B	extracting antimony catalyst residues from a reaction mass as an acidic aqueous phase
in a process to brominate a styrenic polymer in an organic solvent in the presence of an antimony trihalide catalyst such that the reaction mass containing brominated styrenic polymer in an organic phase is formed	

(summary of claim 1)

Hoechst Aktien-Gesellschaft discloses that a quantity of aqueous hydrochloric acid is added to the used catalyst solution of antimony (III) halide in chlorofluoroethane to become two separable phases, wherein the amount of acid or water added to the used catalyst for obtaining two separable phases depends on the antimony content of the catalyst and on the concentration of the acid used (page 1, lines 27-43; page 2, lines 20-50; claim 1). Thus the present claims are anticipated by the disclosure of Hoechst Aktien-Gesellschaft.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoechst Aktien-Gesellschaft (GB 1 531 799).

The disclosure of Hoechst Aktien-Gesellschaft is adequately set forth in paragraph 4 and is incorporated herein by reference.

The difference between the present claims and the disclosure of Hoechst Aktien-Gesellschaft is the requirement of at least two treatments with aqueous hydrochloric acids to be used in the present invention.

It is noted that the organic phase treated with aqueous hydrochloric acids at least twice would be the same as that treated with aqueous hydrochloric acid only once because antimony trihalide is very soluble in aqueous solution of hydrochloric acid. Thus, without the criticality to twice treat with aqueous hydrochloric acid, it would have been obvious to one of ordinary skill in the art at the time the invention was made to twice treat the organic phase with the aqueous hydrochloric acid and thereby obtain the present invention.

7. Claims 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barda et al. (US 4,352,909) in view of Hoechst Aktien-Gesellschaft (GB 1 531 799).

Barda et al. disclose a process to produce a essentially trihalogenated polystyrene, comprising the steps of (a) dissolving polystyrene in a chlorinated hydrocarbon solvent, (b) reacting the resulting solution of the polystyrene with a stoichiometric excess of bromine chloride in the presence of antimony trichloride to produce a brominated polystyrene (claim 1).

The difference between the present claims and the disclosure of Barda et al. is the requirement of a step to remove the antimony trichloride residue in the organic solvent.

Hoechst Aktien-Gesellschaft discloses that a quantity of aqueous hydrochloric acid is added to the used catalyst solution of antimony (III) halide in chlorofluoroethane to extract the

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antimony (III) halide residue into an aqueous phase and purify the brominated polystyrene (page 1, lines 27-43; page 2, lines 20-50; claim 1). In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adopt the extraction method disclosed by Hoechst Aktien-Gesellschaft to the disclosure of Barda et al. and thereby obtain the present invention.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

L. S. Choi

**LING-SUI CHOI
PRIMARY EXAMINER**

January 25, 2005